

## **A High-Gravity Reactive Precipitation Process for the Preparation of Barium Titanate Powders**

### **ABSTRACT**

The invention relates to a process for the preparation of fine barium titanate ( $\text{BaTiO}_3$ ) powders. The process comprises introducing an aqueous solution (I) containing salts of barium and titanium, and an aqueous basic solution (II) containing an inorganic or organic base separately and simultaneously into a high-gravity reactor with the high-gravity level of 1.25G to 12,500G and performing the reaction of the solution (I) with the solution (II) at a temperature of from 60 to 100°C. The solution (I) is preheated to a temperature ranging from 60°C to 65°C and the solution (II) is preheated to a temperature ranging from 60°C to 100°C respectively prior to the reaction, in which the Ba/Ti molar ratio in the solution (I) is more than 1 and the concentration of the base in the solution (II) is such that the reaction mixture is maintained at a constant  $\text{OH}^-$  concentration, preferably a pH value of about 14. The reaction product is separated by filtering and washed with deionized water to remove the impurity ions and excessive barium ions, and then dried to obtain  $\text{BaTiO}_3$  powders. Said powders consist essentially of crystalline, primary particles having a uniform particle size ranging from 5 to 200nm, an approximately spherical morphology and a high sintering activity.